

Running head: ANALYSIS OF PCP EMPANELMENT

Make Vs. Buy: An Analysis of the Victory Clinic and the Primary
Care Empanelment Model at Martin Army Community Hospital

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Abstract

Changes in policy and rising healthcare costs have forced the Military Health System (MHS) to operate as a business similar to civilian healthcare organization. Providing the best possible healthcare for less is critical to the success of the organization. Primary Care and the Primary Care Manager (PCM) are an essential part of maintaining beneficiary health status and keeping the costs of healthcare at a minimum. Martin Army Community Hospital (MACH) has two Family Practice Clinics, which produce the majority of the primary care workload in the facility. The MACH Family Practice Clinic and the Victory Clinic, a General Services Contracted Clinic, are two portals to the primary care manager in the family practice arena. A make Vs buy analysis was conducted to determine the most cost-effective method of providing Primary Care to the beneficiary population. The Family Practice Clinic at MACH was compared to civilian industry benchmarks of panel size, productivity, support staff, and exam room availability to improve the efficiency of the clinic. This study suggests that MACH can improve the efficiency of the Family Practice Clinic by using the industry benchmarks and reduce the overall costs of healthcare to the facility by terminating the General Services Contract and converting the Victory Clinic to an "in-house" clinic.

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Make Vs Buy: An Analysis of the Victory Clinic and the Primary Care Empanelment Model at Martin Army Community Hospital

INTRODUCTION

Conditions Which Prompted the Study

As the nation prepares to enter the new millennium, it has become evident that the Military Health System (MHS) must continue to evolve and adapt if it intends on remaining competitive in the managed care market. The challenge for Medical Treatment Facilities (MTFs) is balancing the demand of providing the active force with the appropriate healthcare to meet military readiness requirements and improving the beneficiary population's access to and quality of healthcare while remaining financially solvent. This must be accomplished in a period marked by decreasing resources, increasing demands for health services, rising healthcare costs, and increased pressure from retiree groups to "keep the promise" of free healthcare for life. To meet the competitive challenges of the managed care environment, MTFs within the MHS are constantly looking for ways to improve patient care, increase efficiency, increase productivity and decrease costs.

TRICARE

Tri-Service Coordinated Care (TRICARE) is a comprehensive Department of Defense (DoD) healthcare program. TRICARE is the result of several changes that have occurred in the DoD healthcare program to reflect the trends of the civilian healthcare sector. TRICARE, formerly known as Civilian Health and Medical Program of the Uniformed Services (CHAMPUS),

originally operated identical to a civilian indemnity insurance plan. However, in the late 1980s, increasing healthcare expenditures, the expansion of managed care in the civilian healthcare sector, and increasing dissatisfaction among beneficiaries and MTF staff members concerning the quality and access of care resulted in the need for dramatic changes in the MHS (Rand Corporation, 1999)(Cox, 1996). In an attempt to fix these problems, several demonstration projects were implemented such as the CHAMPUS Reform initiative, the Catchment Area Management Model, the Tidewater Initiative and the U.S. Army "Gateway to Care" program. Although none of these projects were completely successful, they did demonstrate that the MHS could potentially operate in the capitated environment of the managed care environment. These demonstration projects, and other initiatives that followed, shifted the MTF's focus from a retrospective, fee-for-service reimbursement setting, to a prospective, capitated environment. The final product of these demonstration projects was TRICARE, which was implemented in 1995 (McGee, Hudak, 1995)(Rivera, 1996)(Cox, 1996).

TRICARE, DoD's version of managed care, is managed by the military in partnership with private sector healthcare companies who enter into an agreement known as a Managed Care Support (MCS) contract. The MHS is divided into 14 distinct regions (Appendix 1), with seven different MCS contractors. A lead agent, normally the commander of the largest MTF within the region, has oversight for all TRICARE operations within their region. The lead agent and their staff coordinate all TRICARE

activities at the regional level. The local MTF commander is responsible for the activities at their facility and answers to the lead agent on local TRICARE issues. The MCS contracts are designed to augment the medical support available in the MTF and assist in administrative functions. The specific goals of the military and civilian medical resources outlined in the MCS contracts are to:

1. Improve overall access to health care for beneficiaries;
2. Provide faster, more convenient access to civilian health care;
3. Create a more efficient way to receive health care;
4. Offer enhanced services, including preventive care;
5. Provide choices for health care; and
6. Control escalating costs (Cox, 1996), (Bete, 1999)
(TRICARE Marketing Office, 1998).

Bid Price Adjustment

Contracts of this size and for this purpose, providing every aspect of healthcare to a constantly changing population, are very intricate and legally complex. There is an infinite amount of uncertainty that could affect either party in this arrangement. To offset this potential negative impact for both the MTF and the contractor the government incorporated several complex mechanisms such as bid price adjustment (BPA), risk sharing, and resource sharing (Cox, 1996).

The BPA process is rather complex in nature. This study is only concerned with the ambulatory visit portion of the BPA

process and is simplified below. The amount of annual workload generated by an MTF in an ambulatory setting is consolidated and compared to historical data collected during a specified year known as the data collection period (DCP). If the amount of workload generated by an MTF decreases during a subsequent period as compared to the DCP, there is the potential for a "shift" in dollars (negative BPA) from the MTF to the contractor. However, if an MTF generates more workload during the year than the DCP, then there is the potential for a positive BPA, the shifting of dollars from the contractor to the MTF. The BPA is calculated using the "desktop model." This is a DoD approved model and can calculate the total dollar amount of the positive or negative "shift for the increase or decrease workload. Additionally, it provides a cost figure associated with the loss or gain of an individual ambulatory visit. There are numerous factors that affect workload. A reduction in physicians, deployment of health care providers, a change in the appointment template, or an increase in support staff ratios, affect the workload generated by an MTF (Cox, 1996)(Raines, Personal Communication, 1999). Therefore it is critical for financial stability of an MTF and the MHS to maintain, and preferably increase their workload whenever possible.

Beneficiary Options

To meet these goals, TRICARE provides three different options for eligible beneficiaries: TRICARE Prime; TRICARE Extra; and TRICARE Standard. An eligible beneficiary is defined as active duty military personnel, family member of active duty

personnel, or military retirees, and their family members under the age of 65. TRICARE Prime is similar to a closed panel or staff model health maintenance organization (HMO). Members enrolled in Prime coordinate all their healthcare needs through a Primary Care Manager (PCM) or a Primary Care Team (PCT) at the MTF. MTFs operating near full enrollment capacity may allow Prime enrollees to use a civilian PCM, in the local Preferred Provider Network (PPN), if the local MTF commander has opened the PPN to prime enrollees. There is no deductible or copayment for care received at the MTF, however a copayment is required for care obtained through a civilian PPN. All active duty personnel are automatically enrolled in TRICARE Prime, but other eligible beneficiaries may enroll in Prime or choose one of the other two options. There is no annual enrollment fee for AADs, however there is an annual fee for retirees of \$230 for an individual or \$460 for the entire family (Humana Military Healthcare Service, 1999).

TRICARE Extra is similar to the civilian model Preferred Provider Organization (PPO). Beneficiaries do not enroll in Extra, but choose an authorized civilian provider from the local PPN who has agreed to accept the TRICARE negotiated rate. Beneficiaries are responsible for paying the costs associated with the copayment and the annual deductible (Humana Military Healthcare Service, 1999).

The final option, TRICARE Standard is nothing more than a new name for the traditional CHAMPUS and is similar to a civilian indemnity insurance plan. Under TRICARE Standard,

there is no provider network, the beneficiary simply selects any authorized CHAMPUS provider they wish to visit and is subsequently responsible for paying the copayments and deductible. Tables 1 and 2 outline the different benefits and coverage of these three options for active duty family members (ADFM) and retirees respectively (Humana Military Healthcare Service, 1999).

Active Duty Family Members (ADFM)				
	TRICARE Prime: E-1 thru E-4	TRICARE Prime: E-5 and above	TRICARE Extra/ Standard ADFM: E-1 thru E-4	TRICARE Extra/ Standard ADFM: E5 and above
Annual Enrollment Fees	None	None	None	None
Eligible for Care in MTF	Yes	Yes	On a Space Available Basis	On a Space Available Basis
Primary Care Managers	Yes	Yes	No	No
Annual Deductible (Individual/Family)	None	None	\$50/\$100	\$150/\$300
Civilian Outpatient Copayment	\$6 per visit	\$12 per visit	Extra: 15% Standard: 20%	Extra: 15% Standard: 20%
Catastrophic cap for (ADFM)	\$1000	\$1000	\$1000	\$1000

Table 1. TRICARE Benefits for Active Duty Family Members

Retirees and Their Family Members			
	TRICARE Prime	TRICARE Extra	TRICARE Standard
Annual Enrollment Fees Individual/Family	\$230/\$460	None	None
Eligible for Care in MTF	Yes	On a Space Available Basis	On a Space Available Basis
Primary Care Managers	Yes	No	No
Annual Deductible Individual/Family	None	\$150/\$300	\$150/\$300
Civilian Provider copays: Outpatient Visit Emergency Care Mental Health Visit	\$12 \$30 \$25	20% of negotiated fee	25% of allowable charges
Catastrophic Cap for Retiree/Family Member	\$3000	\$7500	\$7500

Table 2. TRICARE Benefits for Retirees and Their Family Members

Martin Army Community Hospital

Martin Army Hospital Community Hospital (MACH) is a large Medical Department Activity (MEDDAC) located on the Fort Benning Military Reservation, near Columbus, Georgia. As part of the MHS, MACH supports a total beneficiary population more than 77,000; consisting of approximately 17,500 active duty military members, 50,000 TRICARE eligible and 9,500 Medicare eligible beneficiaries (Command Brief, October 1999). These beneficiaries can access primary care at MACH through seven Troop Medical Clinics (TMCs), a pediatric clinic, three family

practice clinics, and one contracted outpatient clinic (Victory Clinic). Active duty personnel must access all non-emergent care through one of the TMCs or family practice clinics. Family members (active duty dependants-ADDs) and retirees (non-active duty dependants-NADDs), who are enrolled in TRICARE Prime must access all non-emergent care through one of the family practice clinics, the pediatric clinic or the Victory Clinic. ADDs and NADDs who are TRICARE Standard or Extra, and Medicare Eligible patients may access care, on a space-available basis, at any of these clinics also. If there are no space-available appointments, these beneficiaries must use the civilian healthcare option provided under the appropriate TRICARE plan.

Victory Clinic

A large portion of the space-available care provided by MACH is accessed through the Victory Clinic. The Victory Clinic is a legacy of the Primary Care for the Uniformed Services (PRIMUS) project. In 1997, a contract was reestablished with the Victory Clinic and it was moved from its location in Columbus, Georgia into the lower level of MACH. The Victory Clinic operates under the same TRICARE access standards and priority of care guidelines as any other primary care clinic within the MTF. MACH can enroll or empanel up to 16,999 beneficiaries for \$2.02 million annually and is allowed to count all workload generated by the Victory Clinic for the BPA process. Currently, MACH is in the third option year of a five-year contract with the Victory Clinic (General Services Contract #DADA10-97-C-0003) (Personal Conversation, Dale Raines, November

1999).

During an annual budget review in October of 1999, the commander of MACH was presented with several troublesome items. First, there is a possibility of a negative BPA due to the decrease in workload throughout the entire MTF and the Victory Clinic. The percentage of Prime Enrollees for both NADDs and ADDs, is below the below the commander's stated objective, and until the MTF's empanelment reaches 90% of capacity the civilian PPN will not be open to TRICARE Prime enrollees. Finally, the unsubstantiated rumor that all DoD MTFs would adopt the Air Force empanelment model and empanel 1500 beneficiaries to each PCM by the beginning of next year. These items generated several "hotbeds" of discussion. After much discussion, the hospital's senior executive leaders all agreed that all of these factors could have a major impact in the near future on the budget of MACH. At the conclusion of this meeting, the commander posed a simple question. Can MACH recapture the workload of the Victory Clinic in-house and for less than the \$2.02 million contract (Make vs. Buy)? According to the Contracting Officer's Technical Representative (COTR), this question has been asked by the three previous commanders and that the project is time consuming for any of the regular staff members.

After the meeting, I approached my preceptor, LTC Joe W. Butler, the Deputy Commander for Administration (DCA), and we discussed in detail the potential value this project would have for MACH and the possibility of this as my graduate management

project (GMP). During a subsequent discussion with the Deputy Commander for Clinical Services (DCCS), the Chief of Family Practice and Community Medicine, and the DCA, the following questions were considered critical objectives in a make vs. buy analysis of the services provided by the Victory Clinic:

1. What is the maximum empanelment capacity of family practice clinic as it is configured? Is this the optimal configuration? What resources are required to modify the current model to meet the stated objectives of the Air Force model?
2. How many of the Victory Clinic enrollees could family practice clinics absorb under the current empanelment structure at MACH and under the proposed Air Force model?
3. What would be the effect on workload for MACH and how might this affect the BPA if the Victory Clinic contract was not renewed for the final option year?
4. What additional staff would be required to perform the entire Victory Clinic Workload and how much would it cost?
5. How much would it cost the government to end the contract early?

At the conclusion of this meeting, it was determined that this project would be assigned to the administrative resident and should satisfy the requirements of my graduate management project.

STATEMENT OF THE PROBLEM

In an effort to reduce the overall cost of providing primary care through the family practice portal, conduct a critical analysis of the current empanelment model of the Martin Army Community Hospital Family Practice Clinic as part of a make Vs. buy analysis of the Victory Clinic.

Literature Review

As managed care and health maintenance organizations continue to penetrate communities in America, the family care clinic has become the focal point for primary care and the family physician, is the customary primary care manager (PCM) or gatekeeper for the managed care patient. The military is nothing more than a mirror reflection of the American society and has adopted the concepts and tenants similar to those incorporated in civilian HMOs. Access to one's PCM is critical and must be the best experience possible for the patient if an organization intends on maintaining that patient as a satisfied and happy customer. To ensure patients have access to their PCMs, efficient empanelment models must designed and implemented that meet the needs of both the organization and the beneficiaries.

Empanelment Benchmarks

Beneficiary to PCM panel sizes vary throughout the literature. Panel sizes varied from 5000:1 on the upper end of the scale to 800:1 on the bottom end. The average panel size ranges between 1150:1 and 1450:1. A definite distinction in panels sizes was evident between large HMOs (more than 80,000

beneficiaries) and small HMOs (Dial, Palsbo, Bergsten, 1995)(Kongstvedt, 1997) (Hart, Wagner, Pirzada, 1997)(Hoechst Marion Roussel, 1999).

In a small HMO, PCMs were empaneled fewer patients, on average, than their counterparts in a large HMO. Additionally, PCMs participating in closed panel and staff model HMOs empanelled a larger number of beneficiaries than PCMs in group model HMOs. The average empanelment for closed panel HMOs (the military healthcare system is similar to a closed panel HMO) ranged between 1375:1 and 1465:1 (Dial, Palsbo, Bergsten, 1995)(Kongstvedt, 1997) (Hart, Wagner, Pirzada, 1997)(Hoechst Marion Roussel, 1999). MACH is comparable to a closed-panel HMO with less than 80,000 enrollees.

A study of two of the largest and oldest closed panels HMOs cautions using these national averages to develop empanelment models. Empanelment models are sensitive to numerous factors, and particularly to the methods used to account for PCMs. An empanelment model must account for a PCM in terms of a Full Time Equivalent (FTE). The use of physician extenders (PA/NP) and the methods used to account for their use could distort the empanelment figures. Some HMOs account for the PA/NP as a separate PCM, while others consider them part of the PCM team and increase the panel proportionally. This study suggests, by meticulously accounting for PCMs as an FTE, a more moderate average of 1298:1 for a physician PCM (1 FTE) and 1058:1 for a PA/NP PCM (.8 FTE)(Hart, Wagner, Pirzada, 1997).

Kongstvedt agrees with this estimate for the PA/NP. Most

plans estimate their PA/NP between .5 and .8 of a PCM FTE, depending on the experience, supervision, additional clinical duties, and the amount of extra time normally spent with a patient when compared to a physician provider. This increased time spent with patients has increased the satisfaction levels of patients and lead to a greater popularity among beneficiaries when empanelling to a PA/NP. Closed panel HMOs are more likely to use non-physician providers as PCMs, (86% closed panel Vs. 48% open panel) (Kongstvedt, 1997). Review of current literature indicates there are four primary factors that influence optimal empanelment size: support staff ratio, number of exam rooms per provider, provider availability/productivity, and population utilization.

Support Staff and Exam Rooms

The provider must have adequate support staff to optimize efficiency. Receptionists, appointment clerks, medical assistants, and medical record clerks are support staff directly involved in the clinic operations and are the primary concern of clinical managers. Appropriate levels of direct clinical support staff is one of the primary ways to increase efficiency and cut costs in an ambulatory clinic (Borglum, 1997).

In reviewing benchmarks of the industry, it is difficult to separate actual clinical support staff from the "backend" (business office, administrative support staff, laboratory, pharmacy, and radiology) of the HMO. A majority of the studies include the "backend" in the support staffing ratios. In a cost survey for 1998, the Medical Group Management Association (MGMA)

reports the median FTE support staff to FTE provider as 4.77:1 in ambulatory setting (Damsey, 1998).

A study using the Med Model computer simulated decision support software analyzed the impact of support staff ratios and exam rooms on patient volume in an ambulatory clinic. Based upon the findings in this study, a clinic of 6 PCMs, with a team of 4 medical assistants (MAS) or 6 MAS assigned individually to a PCM, 4 receptionists, and 2 exam rooms per PCM could average 200 patients per day. Increasing the number of exam rooms per provider had no significant impact on throughput, but decreasing below 2 exam rooms had a profound negative impact on patient volume. An interesting result was the team approach to the MAS. One would assume that each provider having an assigned MA would increase efficiency and volume, however, this did not occur in this model. Having a pool of 4 MAS for the entire clinic to use was as efficient as having an individual MA (6 total) assigned to an individual PCM. Using the team MA approach actually reduces cost and staffing requirements in this clinic simulation (Allen, Ballash, Kimball, 1997).

In March of this year, the Office of the Assistant Secretary of Defense, Health Affairs published a policy with expectations for military primary care clinics as 2 exams rooms per provider and 3.5 support staff per provider (Bailey, 2000). The Air Force accounts for this 3.5 support staff as .5 nurse, 2 medics (MAS), and 1 admin FTE (Manaker, Pearse, 1999). The support staffing ratios and exam rooms are a crucial variable in the productivity and efficiency of the PCM, however no variable

is as important as the PCM. If the PCM is unavailable to provide patient care a large portion of the day, or is busy performing other duties not directly patient care, then the provider is being unproductive, and entire clinic will be unsuccessful.

Provider Availability and Productivity

Availability

Provider availability is essential in determining if the provider should be considered as an FTE and in determining the appropriate panel size for each provider. Several different methods are used to determine a FTE provider. One method uses the annual number of patient visits to a provider. An organization may choose to use the annual average as determined by the Medical Group Management Association (MGMA), 4339 patient visits per provider, or establish its own figure as PacifiCare of Texas has with 5000 annual visits equal to one FTE provider. For example, if a provider is only available for 2000 visits annually, divide 4339 into 2000 and this provider is considered as a .46 FTE for the organization (Merritt, 1999)(Wright, 1994).

The method encountered most often in the literature uses the total annual hours or weeks the provider is available for patient encounters. A FTE in this method ranged from 1840-2088 hours annually, or 46-52 weeks (Hart, et al, 1997)(Wright, 1994)(Dial, et al, 1995).

A model developed at the Naval Hospital in Bremerton, Washington calculated a FTE as 2042.5 hours annually using a 50-hour workweek as the standard for military providers. This

2042.5 hours accounted for 300 hours for 30 days annual vacation (30 days x 10 hours/day) 100 hours for 10 federal holidays, 50 hours for 5 days Continuing Medical Education, and 107.5 hours for a 30 minute lunch each day (Helmets, S., McClellan, P., Adams, C., Anderson, A., Backman, M., Beasley, J., Belford, A., Edwards, R., Marshall, R., Potter, G., Vining, K., Yovanno, D., 1999). 50 hours a week direct patient care is a rather zealous benchmark for defining a FTE. Additionally, many organizations will take training holidays in conjunction with a Federal Holiday. This will increase the number of days an MTF is not operational. This model may work well for the Naval Hospital at Bremerton, but is unrealistic for MACH.

Different studies have reported civilian HMO providers direct patient care time as low as 22.8 hours per week to as much as 50 hours per week, with an average 40 hours a week. Normally, employed PCMs averaged 6 hours less of direct patient care than their counterparts in a private practice (Flaherty, M., 1998) (Kikano, G., Goodwin, M., Stange, K., 1998)(McLaurin, 2000)(Dial, Et al)(Wright).

Recently, the Assistant Secretary of Health Affairs approved an enrollment capacity-planning model, which establishes the standard for military providers. FTE military providers work 46 to 47 week per year and average between 32 and 37 hours per week direct patient care (McLaurin). The later model provides a good planning model and is a more realistic figure for the military PCM than 50 hours per week. However, two of the most practical ways to cut costs and increase

efficiency in a practice setting is by increasing direct patient care hours to 37 hours a week and averaging 3.5 to 4.0 patients per hour (Borglum)(Aymond).

Productivity

Provider productivity is normally expressed one of three ways; visits per hour, visits per day, or visits per week. The literature suggests that 3.5-4.0 visits per hour, 24-33 visits per day, and 133 visits per week as benchmarks for provider productivity. These figures have remained stable since 1995 with employed physicians seeing on average 6 less patients per week (Flaherty). The MHS has established 25 patients per day as a target for each provider (McLaurin). The mean duration of a PCM visit has increased over the last 20 years. In a study between 1974 and 1994, the mean PCM visit time increased from 15.3 to 18.1 minutes. This is partly explained by the increase in elderly visits that had longer visits (19.0 minutes) than non-elderly (17.6 minutes). Another factor for this increased visit duration is education, counseling and preventative screening. Using these as demand management tools is an attempt by the provider to keep the patient from returning for a second, possibly unneeded visit (Stafford, R., Saglam, D., Causino, N., Starfield, B., Culpepper, L., Marder, W., Blumenthal, D., 1999) (Woodwell, D., 1999). Properly used, demand management is an important and necessary tool for PCMs in a capitated environment. Demand management refers to activities employed by the health service provider to reduce the overall services required by the beneficiaries. The activities may decrease

utilization, improve access, increase beneficiary satisfaction, and increase empanelment sizes by reducing utilization (Kongstvedt, 1997).

Beneficiary Utilization

One would assume the number of visits per beneficiary would decrease as the managed care market evolved. This has not been the case, the overall average number of visits for to a PCM has increased from 2.6 visits annually in 1975 to 3.0 visits annually in 1997. The average annual visits per beneficiary increase after 24 years of age with a dramatic increase in average visits once a beneficiary becomes Medicare eligible (over 64). The average number of visits to a PCM in 1997 for beneficiaries under the age of 64 was 3.5 annually versus an annual average of 6.0 visits for Medicare eligible patients (Woodwell, 1999).

Local utilization is an important factor, and must be considered when empanelling beneficiaries to a provider. Theoretically, a provider in an organization with higher utilization, 6.0 visits annually, could only empanel half the beneficiaries of a provider closer to the national average of 3.0 visits annually. Historically, MHS beneficiaries tend to have a higher utilization than their civilian counterparts. Realizing this, any analysis or development of a provider panel must account for local utilization data and methods to manage this demand.

Previous Studies Conducted at Military MTFsTidewater Naval Hospital

There have been numerous studies conducted in the military that predict the ideal primary care clinic using population utilization, infrastructure (exam rooms/provider), provider availability, productivity, and perception of capabilities. In 1994, the Naval Hospital in Tidewater, Virginia, conducted a study that evaluated the organization's primary care capacity. This study examined three empanelment models to determine the appropriate provider-to-beneficiary ratio. The three models included a large civilian HMO (PacifiCare of Texas), a large military medical center (MEDCEN) ambulatory clinic at Fort Bragg, North Carolina, and the American Medical Association (AMA) capacity model. The provider-to-beneficiary ratio in these three models varied from 1:950 for military providers to 1:2000 for civilian providers. All of these models were based on provider availability and enrollee utilization, none of these empanelment models attempted to correlate provider productivity with support staff or exam rooms. The Tidewater study concluded that military facilities should range between 1:1,200 and 1:1,500 based on provider availability and beneficiary utilization (Wright, 1994).

Moncrief Army Community Hospital

Another study conducted the same year, focused on determining a staffing model for all primary care clinics at Moncrief Army Community Hospital, Fort Jackson, South Carolina. While the Tidewater study focused empanelment, the number of

patients/beneficiaries per provider, the Moncrief study considered four different staffing models. These staffing models encompassed several additional variables such as the number of exam rooms per provider, the support staff per provider, the use of Physician Assistants (PAs) and Nurse Practitioners (NPs) as primary care managers, and provider productivity (Martin, 1994).

A practical empanelment model, normally expressed as the number of beneficiaries per provider, is the result of an effectively designed staffing model. The staffing model is a systems approach that provides the appropriate medical staff, which in turn provides the appropriate level of medical care to a beneficiary population. Staffing models account for beneficiary utilization, provider availability, provider productivity, support staff, facility design, and appointment templates.

The Moncrief study analyzed four different staffing models: the American Hospital Association (AMA) community demand model; the Health Care Management Support Engineering Activity's Full Time Requirement Utilization Model (FTRUM); Gateway To Care (GTC) Manpower Staffing Assessment Model; and the Quantitative Systems for Business Plus (QSB+) Linear Goal Programming Staffing Model with a managed care family practice emphasis. The AMA, GTC, and FTRUM models all retained many of the inefficiencies and high costs associated with the fee-for-service environment, however the QSB+ proved to be very cost effective and incorporated a team approach to primary care in

the family care setting (Martin, 1994).

The QSB+ is a computer software package developed for problem solving within the management sciences. The QSB+ team is headed by a family practice physician (PCP), assisted by one nurse practitioner (NP), one physician assistant (PA), one registered nurse (RN), one licensed practical nurse (LPN), and two medical assistants. Additionally, one receptionist and one appointment clerk provide administrative support for every two QSB+ teams. Each QSB+ team has an annual capacity of 14,139 visits. One FTE PCP was responsible for 112.5 weekly visits, while the PA and NP were responsible for 95.5 weekly visits and must be available 46.6 weeks annually. Dividing the annual capacity by the annual average visits per beneficiary for the local population will provide the empanelment model for the QSB+ (Martin, 1994). Based on data from 1998, the average number of physician encounters by non-Medicare patients enrolled in staff model HMOs was 3.9 annually (Hoechst Marion Roussel, 1999). Using this figure (3.9) empanels 1344 patients per PCP and 1141 patients per NP or PA for a team total of 3626 patients per QSB+ team. Additionally the QSB+ model requires 1.67 support personnel per provider. This study concluded that the QSB+ model was the most cost effective and clinically acceptable model for their family practice clinic (Martin, 1994).

Heidelberg, Germany

A Med Model simulation study was conducted at Heidelberg MEDDAC to optimize the family practice staffing and process configuration in 1996. Two models, an all physician model (eight

physicians), and a combination model (five physicians, four PAs) were simulated and both were validated as models capable of supporting the Heidelberg beneficiary population based on an utilization rate of 4.7 visits per year. Each FTE physician provider was responsible for a panel of 1300 beneficiaries, and each FTE PA provider maintained a panel of 1000 beneficiaries. The simulation parameters included an average daily throughput of 23-25 patients per provider, appointments were scheduled every 20 minutes, 1 exam room was available per provider, and there was "sufficient support staff" to accomplish the throughput (Ledlow, 1996). The researcher did not provide a definition of "sufficient support staff", but analysis of the model design shows that each provider has one medical assistant in direct support, and a receptionist for the general support of the entire clinic. This support staff does not include any administrative support staff that does not interact directly with the patient before they enter the clinic such as an appointment clerk or a records clerk.

This study provided several useful observations in optimizing a family practice clinic. A clinical team (physician + PA/NP) must increase their empanelment size, at a minimum, 650 beneficiaries to realize any cost savings from the addition of the PA/NP (Hummel, Pirzada, Sarmad, 1994). Additionally, a physician extender (PA/NP) can accomplish 60-80% of the primary and preventive care provided by a physician at much less costs. A Harvard Community Health plan noted that only 28% of patient visits required a physician's level of care, but physicians are

actually providing 66% of the care. If this difference, 38%, can be appropriately managed so patients receive the appropriate care from the appropriate provider, the physician can see more patients and spend more time with the patients who require the physician's level of expertise. Finally, the implementation of the quasi-parallel screening process (screen in the exam room) increased the overall efficiency, total clinical throughput, and improved patient satisfaction (Ledlow, 1996).

These different studies, conducted at three different military hospitals, all provided their facility with a useful, yet unique empanelment model. Although none of the studies produced similar empanelment models, there were consistencies throughout this stream of research. A multi-disciplinary Process Action Team (PAT) validated these consistencies in a study conducted at Winn Army Community Hospital, Fort Stewart, Georgia, in 1993. This PAT concluded that the most important factors in for establishing an empanelment model for a family practice clinic were local population utilization, infrastructure (exam rooms/provider), provider availability, productivity, and perception of capabilities (Ryan, 1993).

Generally, the literature indicates that HMOs are using different methods to empanel patients to PCMs. It also indicates that these methods are based on national benchmarks, but tailored to the organization based on population demand, provider availability, and provider productivity.

Purpose

The purpose of this study is to ascertain whether it is

cost effective to renew the General Services Contract of the Victory Clinic or recapture this workload "in-house" in the Family Practice Clinic at MACH. Additionally, this study will analyze the current and proposed empanelment models of the Family Practice Clinic. Areas studied include, but are not limited to, staffing, enrollment, patient utilization, provider availability, and infrastructure. Recommendations regarding staffing, enrollment and services will be based on the findings of this study.

Methods and Procedures

The study is described as a descriptive study that is both analytical and quantitative (Cooper, Schindler, 1998). A twelve-month retrospective analysis, using descriptive statistics, of beneficiary utilization and an eight-month retrospective analysis was compared against DoD Benchmarks to determine if Martin Army Community Hospital has excess capacity within the Family Practice Clinic as it is currently configured. Likewise, a twelve-month retrospective analysis of the beneficiaries empaneled to the Victory Clinic was analyzed to determine the utilization requirement for this population. Any additional costs associated with increasing the current Family Practice Clinic empanelment configuration to meet the DoD goals of 1500:1 were calculated and used in the make Vs. buy analysis. The Air Force Medical Application Module (AFMAM) Business Cost Benefit Analysis Software was used to determine the most cost-effective means for Martin Army Community Hospital to provide primary care for the beneficiaries. The AFMAM is the standard

Business Case Analysis Software in Region 3 (Atkins, 2000).

Data Sources and Collection

There were two primary sources for this study: Medical Expense Performance and Reporting System (MEPRS) and the Composite Health Care System (CHCS). These sources are standard DoD information systems and are discussed in the following paragraphs.

Medical Expense Performance and Reporting System (MEPRS)

MEPRS is an accounting system that accumulates and reports expenses, manpower, and workload performed in the MTF. The purpose of MEPRS is to provide a uniform reporting methodology throughout DoD for consistent financial and performance data to assist managers and commanders, who are responsible for the delivery of healthcare, in the decision making process. MEPRS is comprised of two primary subsystems: the Uniform Chart of Accounts Personnel System (UCAPERS) and the Expense Assignment System (EAS) (Sweatman, 1999).

UCAPERS collects and reports data for the salaries and FTEs of civilian and military personnel. The subsystem merges personnel costs from the Defense Civilian Personnel System (DCPS) for civilians and military pay tables for military personnel. All data is based on hours collected from time schedules and clinical surveys. Data from this system will provide the provider work hours and the salaries of additional personnel for this study (Sweatman, 1999)

EAS collects and reports workload and expenses. Workload is input manually, via the Workload Assignment Module (WAM)

interface from CHCS. Data for workload or utilization will be provided by this subsystem (Sweatman, 1999).

Composite Health Care System (CHCS)

Primary Care Manager workload and total workload will be gathered using the CHCS database. This information system is the essential portal for the entire medical staff to place medical orders, obtain laboratory results, request radiological procedures, and order prescriptions.

Validity and Reliability

"Reliability is the accuracy and precision of a measurement procedure. Consistency is an essential factor to reliable measurements and reliability is a contributor to validity. Reliability is necessary for, but not a sufficient condition for validity" (Cooper, Schindler).

"Validity refers to the extent to which a test measures what we actually wish to measure" (Cooper, Schindler). The data validity and reliability gathered for this study is difficult to measure. Data obtained from MEPRS and CHCS will be assumed to be reliable and valid for two reasons. First, there are specific procedures in place to input data into the system and each system has been thoroughly examined for both reliability and validity and are accepted by DoD as the "standard" information system. Second, the Office of the Surgeon General has made data quality and specifically, MEPRS data quality one the key issues in the AMEDD over the last twelve months. This emphasis data quality has greatly increased the "attention to detail" when inputting information into all AMEDD data systems.

Assumptions

The following assumptions will be made for this study:

1. An increase or decrease in ambulatory visits (workload) will have a positive or negative shift on the BPA respectively.
2. Provider and support staff are readily available for hire if additional personnel are needed to meet the demand requirements of the beneficiary population.
3. Funds budgeted for the general services contract of the Victory Clinic will remain in the budget and available to hire new personnel to expand the capacity of the MACH Family Practice Clinic if necessary.
4. Beneficiary utilization will remain relatively consistent over the next twelve months if no demand management procedures are implemented.
5. The data obtained from the DoD information system is reliable and valid.
6. Beneficiaries currently enrolled in the Victory Clinic will prefer to receive primary care at MACH instead of downtown at a network provider.

Ethical Considerations

Patient right to privacy and confidentiality standards will be strictly adhered to throughout this study. Although patient information is being obtained, the data will have no reference to identify any individual. No permission is required and results will be published as aggregate data only.

Expected Findings

I expect that the current configuration of MACH Family Practice Clinic to be at its maximum empanelment. MACH will not be able to recapture any of the current beneficiaries without hiring additional personnel. Finally, I expect MACH can provide the care for less than the \$2.02 million spent on general service contract for the Victory Clinic.

Results and Discussion

MACH Family Practice Clinic is different from other DoD primary care clinics due to the Family Practice Residency Program. There is some inherent inefficiency due to the teaching environment of a residency program. The current empanelment configuration was developed by the DCCS, the Family Practice Department Chief, and the Residency Director based on accreditation guidelines and support staff personnel (Appendix 2). The current empanelment structure can not be changed and panel sizes increased without additional support personnel (Personal Communications, COL Kerchief, COL Stabler, MAJ O'Brien, Nov 1999 - June 2000). Currently, MACH Family Practice Clinic has 2 exam rooms per PCM, 1.8 support personnel per PCM and a daily average throughput of 18.8 patients per day. The 2 exam rooms per provider is equal to the industry standard, however, the 1.8 support staff ratio is less than the industry benchmark (4.77), the Health Affair policy (3.5), and the MEPRS requirement (2.8). This empanelment model could absorb 2551 beneficiaries from the Victory Clinic.

The proposed empanelment model (Appendix 2) was developed using the PCM team concept of the Family Practice Residency Program at the Naval Hospital in San Diego, and the Empanelment Capacity Plan (EPC). A five-year EPC was submitted as part of an U.S. Army Medical Command (USAMEDCOM) requirement to increase the current empanelment size to meet the goal (Air Force Model) of 1500:1. The EPC required two exam rooms per provider, 2.8 support personnel per provider, and a productivity goal of 19 patients per day for a clinic with a Graduate Medical Education Residency Program such as MACH (Bester, 2000). A team of one 1st year, one 2nd year, one 3rd year resident, and a staff physician, which are equivalent to one FTE PCM. DoD Health Affairs is considering adapting this team concept as the standard for Family Practice Residency Programs (Personal Communication, Capt Heroman, 9 May 2000). This empanelment model can only be implemented with the addition of 10 nursing assistants as additional support personnel. This will increase the support staff ratio to 2.8 per PCM and allow for the empanelment ratio of 1500:1. The 1500:1 panel size is on the high end of the range for closed panel HMOs under 80,000. The benchmark ranges from 1375:1 to 1465:1. This 1500:1 panel is a "top down" directed requirement, not an option. This proposed empanelment model could absorb 4176 beneficiaries from the Victory Clinic.

Appendix 4 outlines an eight-month retrospective analysis of PCM productivity within the MACH Family Practice Clinic. Resident requirements for "in clinic days" as a PCM are different depending on the resident's year. Each 1st year

resident is required to be "in-clinic" as a PCM for one-half day (4 hours) per week, each 2nd year three-half days (12 hours), each 3rd year four-half days per week (16 hours) and the teaching staff five-full days per week (34.5 hours) (Personal Conversation, MAJ Obrien, Nov 1999). Adding the averages of the PCM team, a 1st year resident treats 3 patients per week, a 2nd year 12 per week, a 3rd year 24 per week, and the staff physician 55 per week for a total of 94 per week or 18.8 patients per day. This is below the industry standard or 24-33 per day, but is not far off the MEDCOM requirement that a Primary Care Clinic with a Family Practice Residency Program achieves a throughput of 19.1 patients per day. The additional support personnel will increase the efficiency and throughput of the Family Practice Clinic.

Appendix 5 is a twelve-month retrospective analysis of the enrollment and utilization of both the Victory Clinic and MACH Family Practice. This data was used in the BPA calculations, and the additional personnel requirements for the in-house conversion of the Victory Clinic. This data was entered into the AFMAM business decision-making software and a summary of the results is provided in Appendix 6.

The first option in the AFMAM summary is General Services Contract for the Victory Clinic with marginal costs per visit. Marginal costs were calculated using the current MEPRS Data for total cost of the ancillary support for the workload generated by the Victory Clinic. The average cost per visit was then calculated and incorporated to the AFMAM tool. If MACH

loses workload then there is a negative BPA and consequently a positive shift in the marginal cost of ancillary support which is provided elsewhere. This option requires no additional actions by MACH other than renewing the final option year of the General Services Contract at \$2.02 million and the providing the services associated with the marginal costs.

The second option does not renew the General Services Contract and increases the current empanelment model to maximum capacity. The impact of lost workload is can be calculated using the desktop model. The cost of an ADD outpatient visit as \$59 and NADD visit as \$71. There is no accurate method to account for which workload visit (ADD or NADD) will be lost if MACH can not accommodate the entire beneficiary population enrolled in the Victory Clinic. Therefore, \$65 was used as the average cost ($\$59/2 + 71/2$) for a lost outpatient visit. This is consistent with a study completed by the lead agent in Region 3, which calculated the average outpatient cost in the region as \$65 (Wilkins, Anckaitis, 1999).

The third option is the plan to increase the PCM empanelment to the stated goals of DoD Health Affairs of 1500:1 by acquiring the necessary support staff personnel to meet the 2.8 support personnel per provider requirement. This requires 16 nursing assistants at a cost of \$32,700 per year (GS-5, Step 4 with benefits). The calculations for the BPA shift and marginal costs are identical to the procedure described above.

The final option is an in-house conversion of the Victory Clinic using civilian employees with the implementation of the

EPC (1500:1). The costs associated with this option is associated with the additional labor, there is no BPA or marginal cost change. The personnel requirement for an in-house conversion is 7 PCMs, 7 Registered Nurses, and 14 support personnel. This would allow MACH Family Practice Clinic to empanel the entire population of the Victory Clinic.

Weakness of the Study

The major weakness of the study was the focus of the empanelment capacity on the Family Practice Clinic and not MACH as a healthcare system. There are other clinics, which empanel beneficiaries to a PCM, however these clinics are in the process of developing empanelment models. Each clinic must develop an internal empanelment model based on based on similar industry benchmarks for that clinic. Once each department has established an empanelment model, then a systems approach to empaneling the facility can be an area for future research.

Another major weakness was the ability to gather unbiased data. Several attempts had to be made to actually acquire raw data that had not been manipulated or interpreted by hospital personnel.

Finally, several of the industry benchmarks were unable to be incorporated due to the rapid change in DoD policy, which influenced the different options available for this study.

Conclusions and Recommendations

The purpose of this study was to reduce the overall cost of providing primary care through the family practice portal.

Additionally, the current empanelment model was analyzed as part of the make Vs buy analysis of the Victory Clinic. As a result of the make Vs buy analysis, this study concludes the following:

1. The current family practice empanelment model has excess capacity, but is inefficient and inadequately staffed to meet the needs of the facility and the command. This option is the most cost effective option based on the results AFMAM business case analysis.

2. The proposed EPC model increases the excess capacity and increases the cost associated with providing primary care within the facility. This option is command directed and will be implemented in the near future.

3. The in-house conversion with the EPC incorporated is the most costly option of the four, but it offers the most versatility of any of the proposed options. This option allow MACH to provide beneficiaries the same level of care as options 1 and 3 combined at half the costs.

If the MHS ran purely as a business option 2 would be the first choice. Unfortunately, the MHS has many outside influences that govern many of the decisions with in the system. The political ramifications of removing the Victory Clinic without replacing the capacity to care for the 5500 Medicare Eligible beneficiaries would be catastrophic to the organization. The military's promise of "free healthcare for life" is still a political hotbed and will continue to be until Congress agrees to keep the promise. Recent Senate hearings and articles in newspapers such at the Army Times and USA Today

suggests that Congress is considering keeping the promise and mandating the MHS to provide Medicare Eligible beneficiaries healthcare within the DoD facilities. Considering all the factors involved, this study recommends that option four, in-house conversion with the EPC model, be implemented to improve the access to care, improve beneficiary satisfaction, decrease the overall costs while maintaining the same level of primary care, meet the command directed goals, and most importantly keep the promise of "free healthcare for life".

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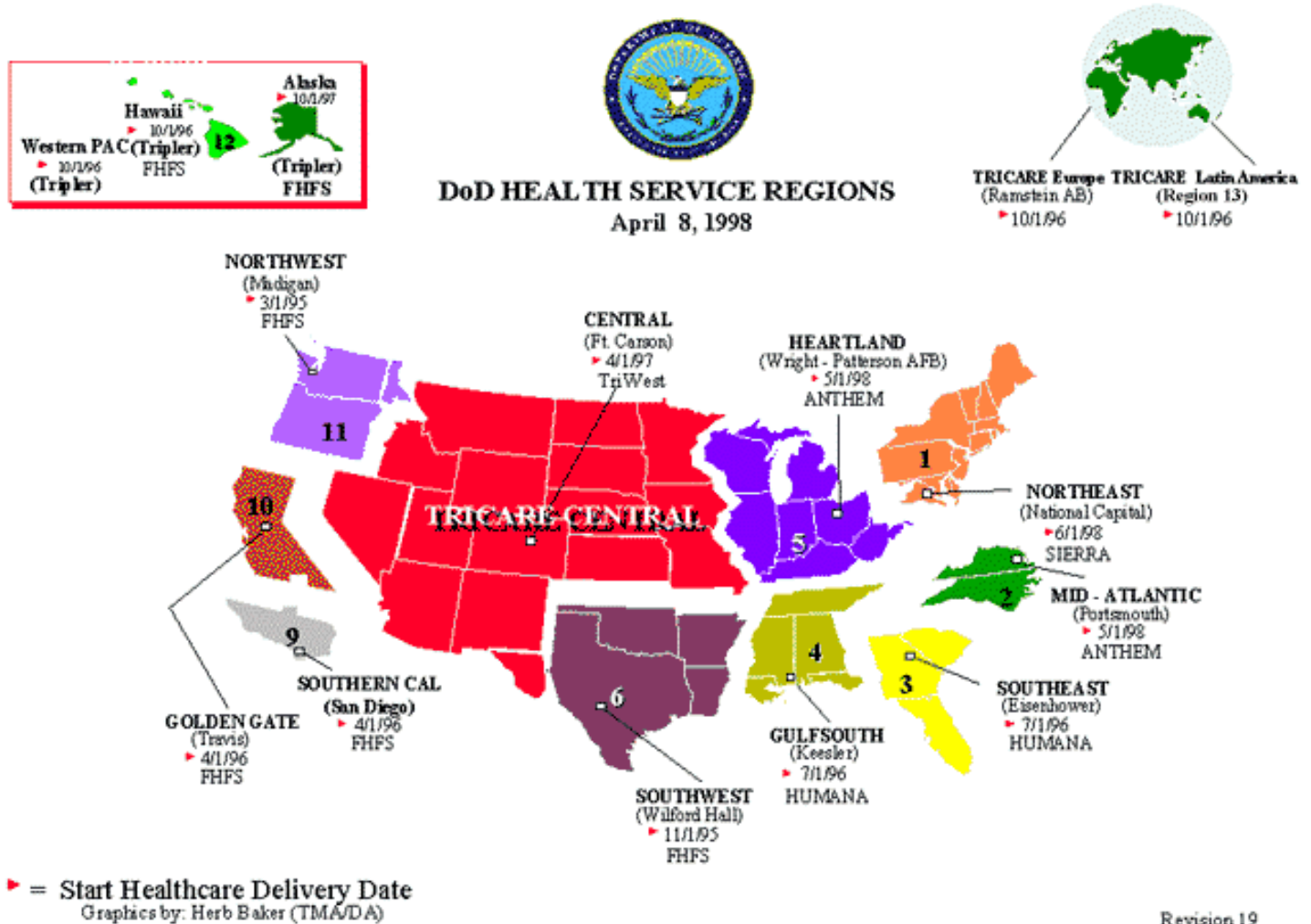
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Appendix 1 - Map of TRICARE Regions



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Appendix 2 – Current Family Practice Empanelment Model

MACH Primary Care Manager Panel Capacity Model July 2000					
Team A	PCM Status	Capacity	Team C	PCM Status	Capacity
	Military Staff Doctor	450		Deputy Commander for	
	Military Staff Doctor	300		Clinical Services	50
	1st Year Resident	100		Clinic Chief	200
	1st Year Resident	100		Military Staff Doctor	450
	1st Year Resident	100		Military Staff Doctor	
	2nd Year Resident	300		Team Leader	300
	2nd Year Resident	300		1st Year Resident	100
	2nd Year Resident	300		1st Year Resident	100
	3rd Year Resident	500		1st Year Resident	100
	3rd Year Resident	500		2nd Year Resident	300
	3rd Year Resident	500		2nd Year Resident	300
	Chief, Dept of Family	150		2nd Year Resident	300
	and Community			3rd Year Resident	500
	Medicine			3rd Year Resident	500
	Sports Medicine Doctor	0		3rd Year Resident	500
	Team A Total	3600		3rd Year Resident	500
				Residency Director	200
Team B	Clinic Chief	450		Team C Totals	4400
	Military Staff Doctor	450			
	1st Year Resident	100			
	1st Year Resident	100		Total Clinic Capacity	12100
	1st Year Resident	100		Current Enrollment	9549
	2nd Year Resident	300		Available Excess	2551
	2nd Year Resident	300			
	3rd Year Resident	500			
	3rd Year Resident	500			
	3rd Year Resident	500			
	3rd Year Resident	500			
	Military Staff Doctor	300			
	Team B Total	4100			

Appendix 3 – Proposed Empanelment Model

Team 1	PCM Status	Capacity		Team 6	PCM Status	Capacity
	Military Staff Doctor	575			Military Staff Doctor	575
	1st Year Resident	100			1st Year Resident	100
	2nd Year Resident	325			2nd Year Resident	325
	3rd Year Resident	500			3rd Year Resident	500
		1500				1500
Team 2	Military Staff Doctor	575		Team 7	Military Staff Doctor	575
	1st Year Resident	100			1st Year Resident	100
	2nd Year Resident	325			2nd Year Resident	325
	3rd Year Resident	500			3rd Year Resident	500
		1500				1500
Team 3	Military Staff Doctor	575		Team 8	DCCS	50
	1st Year Resident	100			Clinical Service Chief	250
	2nd Year Resident	325			Residency Director	250
	3rd Year Resident	500			1st Year Resident	100
		1500			2nd Year Resident	325
					3rd Year Resident	500
Team 4	Clinic Chief	575			3rd Year Resident	500
	1st Year Resident	100				1975
	2nd Year Resident	325				
	3rd Year Resident	500		Team 9	Chief, DFPCM	150
		1500			Sports Medicine Dir	
					1st Year Resident	100
Team 5	Military Staff Doctor	575			3rd Year Resident	500
	1st Year Resident	100			3rd Year Resident	500
	2nd Year Resident	325				1250
	3rd Year Resident	500				
		1500			Total Clinic Capacity	13725
					Current Enrollment	9549
					Excess Capacity	4176

Appendix 4 – Resident and Staff Physician (PCM) Productivity

Results OCT 99 - May 00

Residents		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	CUM
1st Year	CVs/Mon	34	25	35	35	40	34	38	46	287
	Avail Hrs/Mon	47	43	48	29	43	19	40	12	281
	Avg CVs/Day	3	2	3	5	4	7	4	15	4
1st Year	CVs/Mon	22	20	24	28	26	33	33	37	223
	Avail Hrs/Mon	57	37	46	19	28	53	1	4	245
	Avg CVs/Day	2	2	2	6	4	2	132	37	4
1st Year	CVs/Mon	21	20	23	34	15	43	28	37	221
	Avail Hrs/Mon	48	29	36	33	26	43	31	21	267
	Avg CVs/Day	2	3	3	4	2	4	4	7	3
1st Year	CVs/Mon	29	19	23	33	28	27	18	33	210
	Avail Hrs/Mon	33	32	39	36	32	36	1	30	239
	Avg CVs/Day	4	2	2	4	4	3	72	4	4
1st Year	CVs/Mon	0	0	42	86	34	38	53	32	285
	Avail Hrs/Mon	0	0	47	24	46	31	15	1	164
	Avg CVs/Day	-	-	4	14	3	5	14	128	7
1st Year	CVs/Mon	22	28	28	31	35	31	37	34	246
	Avail Hrs/Mon	48	36	43	34	30	40	46	40	317
	Avg CVs/Day	2	3	3	4	5	3	3	3	3
1st Year	CVs/Mon	23	35	25	25	29	31	34	37	239
	Avail Hrs/Mon	51	37	30	31	24	56	30	25	284
	Avg CVs/Day	2	4	3	3	5	2	5	6	3
1st Year	CVs/Mon	52	37	44	44	86	47	73	42	425
	Avail Hrs/Mon	147	80	135	133	123	151	79	91	939
	Avg CVs/Day	1	2	1	1	3	1	4	2	2
TOTALS	CVs/Mon	203	184	244	316	293	284	314	298	2,136
	Avail Hrs/Mon	431	294	424	339	352	429	243	224	2,736
	Avg CVs/Day	2	3	2	4	3	3	5	5	3

* For Residents - Avg CVs/Mon = CVs/Mon divided by Avail
Hrs/Mon X 4.0 Standard Available Hour per 1/2 Day

**Appendix 4 - Resident and Staff Physician (PCM) Productivity
Results Oct 99 - May 00**

Residents		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	CUM
2nd Year	CVs/Mon	139	85	72	97	64	74	51	60	642
	Avail Hrs/Mon	114	117	126	121	104	125	28	52	787
	Avg CVs/Day	5	3	2	3	2	2	7	5	3
2nd Year	CVs/Mon	176	110	92	112	66	246	179	101	1082
	Avail Hrs/Mon	127	75	138	67	89	94	17	108	715
	Avg CVs/Day	6	6	3	7	3	10	42	4	6
2nd Year	CVs/Mon	64	58	57	36	60	112	26	61	474
	Avail Hrs/Mon	126	77	147	120	67	73	109	35	754
	Avg CVs/Day	2	3	2	1	4	6	1	7	3
2nd Year	CVs/Mon	120	90	62	174	235	119	85	143	1028
	Avail Hrs/Mon	113	102	103	113	58	80	46	79	694
	Avg CVs/Day	4	4	2	6	16	6	7	7	6
2nd Year	CVs/Mon	109	88	99	59	80	112	90	106	743
	Avail Hrs/Mon	128	102	121	88	106	152	51	86	834
	Avg CVs/Day	3	3	3	3	3	3	7	5	4
2nd Year	CVs/Mon	79	45	51	67	97	50	22	79	490
	Avail Hrs/Mon	127	96	127	98	122	62	110	128	870
	Avg CVs/Day	2	2	2	3	3	3	1	2	2
2nd Year	CVs/Mon	66	107	101	91	99	116	78	69	727
	Avail Hrs/Mon	122	83	127	119	102	164	92	10	819
	Avg CVs/Day	2	5	3	3	4	3	3	28	4
2nd Year	CVs/Mon	144	97	65	77	101	61	83	104	732
	Avail Hrs/Mon	148	81	95	101	52	131	86	18	712
	Avg CVs/Day	4	5	3	3	8	2	4	23	4
2nd Year	CVs/Mon	79	115	68	73	80	88	71	29	603
	Avail Hrs/Mon	131	106	125	126	81	87	63	78	797
	Avg CVs/Day	2	4	2	2	4	4	5	1	3
2nd Year	CVs/Mon	72	122	86	99	121	128	113	73	814
	Avail Hrs/Mon	106	79	100	81	127	76	91	41	701
	Avg CVs/Day	3	6	3	5	4	7	5	7	5
TOTALS	CVs/Mon	1,048	917	753	885	1,003	1,106	798	825	7,335
	Avail Hrs/Mon	1,242	918	1,209	1,034	908	1,044	693	635	7,683
	Avg CVs/Day	3	4	2	3	4	4	5	5	4

* For Residents - Avg CVs/Mon = CVs/Mon divided by Avail
Hrs/Mon X 4.0 Standard Available Hour per 1/2 Day

**Appendix 4 - Resident and Staff Physician (PCM) Productivity
Results Oct 99 - May 00**

Residents		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	CUM
3rd Year	CVs/Mon	163	181	136	165	130	129	83	38	1025
	Avail Hrs/Mon	117	96	106	131	111	72	56	11	700
	Avg CVs/Day	6	8	5	5	5	7	6	14	6
3rd Year	CVs/Mon	0	161	142	150	132	204	90	150	1029
	Avail Hrs/Mon	0	130	128	104	134	55	72	104	727
	Avg CVs/Day	-	5	4	6	4	15	5	6	6
3rd Year	CVs/Mon	122	161	154	76	146	201	91	142	1093
	Avail Hrs/Mon	147	122	114	81	126	49	9	26	674
	Avg CVs/Day	3	5	5	4	5	16	40	22	6
3rd Year	CVs/Mon	133	150	143	153	168	129	73	102	1051
	Avail Hrs/Mon	107	94	108	102	134	57	99	40	741
	Avg CVs/Day	5	6	5	6	5	9	3	10	6
3rd Year	CVs/Mon	116	149	185	143	124	153	127	113	1110
	Avail Hrs/Mon	113	50	119	74	93	60	33	85	627
	Avg CVs/Day	4	12	6	8	5	10	15	5	7
3rd Year	CVs/Mon	225	184	103	121	174	165	139	172	1283
	Avail Hrs/Mon	136	117	123	83	96	142	99	4	800
	Avg CVs/Day	7	6	3	6	7	5	6	172	6
3rd Year	CVs/Mon	49	160	120	110	120	123	113	128	923
	Avail Hrs/Mon	26	94	133	107	134	65	35	60	654
	Avg CVs/Day	8	7	4	4	4	8	13	9	6
3rd Year	CVs/Mon	129	166	99	83	62	96	116	63	814
	Avail Hrs/Mon	153	29	108	33	109	91	57	5	585
	Avg CVs/Day	3	23	4	10	2	4	8	50	6
TOTALS	CVs/Mon	937	1312	1082	1001	1056	1200	832	908	8328
	Avail Hrs/Mon	799	732	939	715	937	591	460	335	5508
	Avg CVs/Day	5	7	5	6	5	8	7	11	6

*For Residents - Avg CVs/Mon = CVs/Mon divided by Avail
Hrs/Mon X 4.0 Standard Available Hour per 1/2 Day

Appendix 4 - Resident and Staff Physician (PCM) Productivity

Results Oct 99 - May 00

Teaching Staff		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	CUM
Staff Doctor	CVs/Mon	80	79	0	114	85	88	110	103	659
	Avail Hrs/Mon	57	85	0	106	110	137	69	52	616
	Avg CVs/Day	10	6		7	5	4	11	14	7
Staff Doctor	CVs/Mon	128	164	163	134	124	239	156	123	1231
	Avail Hrs/Mon	38	40	41	23	41	34	78	21	316
	Avg CVs/Day	23	28	27	40	21	49	14	40	27
Staff Doctor	CVs/Mon	156	239	200	0	0	0	134	190	919
	Avail Hrs/Mon	77	121	179	0	0	0	98	75	550
	Avg CVs/Day	14	14	8	-	-	-	9	17	12
Staff Doctor	CVs/Mon	112	120	125	132	111	165	60	70	895
	Avail Hrs/Mon	103	61	68	68	47	138	38	112	635
	Avg CVs/Day	8	14	13	13	16	8	11	4	10
Staff Doctor	CVs/Mon	148	161	178	168	184	151	179	200	1369
	Avail Hrs/Mon	155	104	244	163	206	114	141	187	1314
	Avg CVs/Day	7	11	5	7	6	9	9	7	7
Staff Doctor	CVs/Mon	252	231	221	224	234	318	204	297	1981
	Avail Hrs/Mon	160	168	168	160	160	184	152	168	1320
	Avg CVs/Day	11	9	9	10	10	12	9	12	10
Staff Doctor	CVs/Mon	0	0	0	0	0	0	0	0	0
	Avail Hrs/Mon	0	0	0	0	0	0	0	0	0
	Avg CVs/Day	-	-	-	-	-	-	-	-	0
Staff Doctor	CVs/Mon	96	112	92	106	94	132	102	107	841
	Avail Hrs/Mon	78	84	82	36	29	46	11	29	395
	Avg CVs/Day	8	9	8	20	22	20	64	25	15
Staff Doctor	CVs/Mon	142	86	122	134	115	166	63	111	939
	Avail Hrs/Mon	109	112	67	54	65	87	80	66	640
	Avg CVs/Day	9	5	13	17	12	13	5	12	10
Staff Doctor	CVs/Mon	173	146	137	151	154	198	120	171	1250
	Avail Hrs/Mon	84	73	95	59	83	112	61	71	638
	Avg CVs/Day	14	14	10	18	13	12	14	17	14
Staff Doctor	CVs/Mon	167	233	242	0	0	0	0	0	642
	Avail Hrs/Mon	34	65	56	0	0	0	0	0	155
	Avg CVs/Day	34	25	30	-	-	-	-	-	29
TOTALS	CVs/Mon	1454	1571	1480	1163	1101	1457	1128	1372	10726
	Avail Hrs/Mon	895	913	1000	669	741	852	728	781	6579
	Avg CVs/Day	11	12	10	12	10	12	11	12	11

* For Staff Doctors - Avg CVs/Mon = CVs/Mon divided by
Avail Hrs/Mon X 6.9 Standard Available Hours per Day

Appendix 5 - Enrollment and Utilization Data

Victory Clinic										
PCM Workload/Visits						Enrollment				
	Active	Medicare	ADD	NADD &	Totals	Active	Medicare	ADD	NADD &	Totals
	Duty			Retirees		Duty			Retirees	
Jul 99	0	1353	297	2114	3764	0	5605	1084	8166	14855
Aug	0	1105	328	1888	3321	0	5347	1202	8330	14879
Sept	0	1064	348	1940	3352	0	4508	1166	9189	14863
Oct	0	1846	417	2316	4579	0	4498	1200	9185	14883
Nov	0	1276	382	1950	3608	0	5440	1406	8098	14944
Dec	0	1091	420	1887	3398	0	5465	1446	8058	14969
Jan 00	0	1094	455	1709	3258	0	5480	1501	8048	15029
Feb	0	1336	502	2209	4047	0	5492	1574	8093	15159
Mar	0	1198	503	1981	3682	0	5492	1540	8091	15123
Apr	0	1369	496	2200	4065	0	5528	1602	8043	15173
May	0	1529	529	2353	4411	0	5526	1587	8032	15145
June	0	1516	555	2310	4381	0	5533	1640	7913	15086
Totals	0	15777	5232	24857	45866	0	63914	16948	99246	180108
Avg										
Mnth		1315	436	2071	3822		5326	1412	8271	15009
Avg										
Visits		2.96	3.71	3.01	3.01					
per yr										
MACH Family Practice Clinic										
PCM Workload/Visits						Enrollment				
	Active	Medicare	ADD	NADD &	Totals	Active	Medicare	ADD	NADD &	Totals
	Duty			Retirees		Duty			Retirees	
July 99	353	487	2072	1141	4053	690	721	5552	2987	9950
Aug	358	583	2280	1254	4475	687	722	5565	2980	9954
Sept	408	561	2318	1280	4567	709	752	5434	3069	9964
Oct	710	702	2114	1357	4883	709	750	5424	3032	9915
Nov	609	750	2184	1633	5176	708	842	5192	2939	9681
Dec	389	504	1862	1124	3879	711	842	4999	2971	9523
Jan 00	332	448	1898	1133	3811	697	843	4890	2975	9405
Feb	358	477	2056	1150	4041	689	849	4855	2951	9344
Mar	400	554	2325	1410	4689	693	887	4798	2984	9362
Apr	287	397	1796	1067	3547	747	850	4963	3216	9776
May	351	427	2106	1264	4148	789	851	5381	3510	10531
June	337	400	2004	1184	3925	678	851	5447	2573	9549
Totals	1708	5729	22697	13717	51194	8507	9760	62500	36187	116954
Avg										
Mnth	569	521	2063	1247	4266	709	813	5208	3016	9746
Avg										
Visits	2.4	7.04	4.44	4.55	5.25					
per yr										

Appendix 6 – AFMAM Analysis

Summary of the AFMAM Analysis					
		Utilize Current	Hire Additional	In-House	
		Excess Capacity	Personnel to	Conversion	
		with in the Family	meet the 1500:1	with EPC	
	Maintain	Practice Clinic,	capacity model,	(1500:1)	
	Status Quo	Do not renew the	Do not renew the	Implemented	
		GS Contract	GS Contract		
Direct Costs	(\$2,020,000)	\$0	\$0	\$0	
Change in Workload in					
the MTF: ADD	5232	(500)	0	0	
NADD	24857	(21018)	(16436)	16436	
Medicare	15777	(15777)	(15777)	15777	
Total	45866	(37295)	(32213)	32213	
Marginal Costs per visit	\$6.61	(\$6.61)	(\$6.61)	\$6.61	
Total outpatient Marginal					
cost per visit	(\$303,174)	\$246,520	\$212,928	(212927.93)	
Additional Labor Costs	0	0	(514288)	(2024000.00)	
Change in BPA due to					
lost workload	\$0	(\$2,424,175)	(\$2,093,845)	\$0	
Total Cost to MACH	(\$2,323,174)	(\$2,177,655)	(\$2,395,205)	(\$2,751,216)	